



Dust activities near the dawn terminator on 67P/Churyumov–Gerasimenko observed by Rosetta/OSIRIS

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High-resolution images obtained by the OSIRIS camera on board Rosetta spacecraft have revealed dust activities happening close to terminators on the nucleus of comet 67P/Churyumov-Gerasimenko. While activities observed beyond dusk terminator in the night side are considered being sustained by subsurface thermal lag [1], those observed by the dawn terminator might be connected to the sublimation of water ice accumulated on the surface through re-condensation process during night [2,3]. In this study we present pre-perihelion observations of dust emission observed shortly after local sunrise. We investigate the location of these activities as well as their relation with local topography. A generic thermal-physical model will be applied to examine the feasibility of re-condensed ice on the surface being the source of such activities.

- [1] Shi, X., Hu, X., Sierks, H. et al., 2015, Sunset jets observed on comet 67P/Churyumov-Gerasimenko sustained by subsurface thermal lag, A&A, accepted.
- [2] Prialnik, D., A'Hearn, M. F., & Meech, K. J., 2008, A mechanism for short-lived cometary outbursts at sunrise as observed by Deep Impact on 9P/Tempel 1, MNRAS, 388, L20.
- [3] De Sanctis, M. C., Capaccioni, F., Ciarniello, M. et al., 2015, The diurnal cycle of water ice on comet 67P/Churyumov-Gerasimenko, Nature, 525, 500-503.